

FRANKLIN, INDIANA PHASE III ENVIRONMENTAL INVESTIGATION

EXECUTIVE SUMMARY

Mundell and Associates, Inc. (MUNDELL) has conducted Phase III environmental sampling as part of an expanded investigation into residential vapor intrusion concerns, along with surface soil and water sampling in the Franklin, Indiana area. This phase of the investigation was initiated at the request of the Edison Wetlands Association (EWA), and was performed in response to previous sampling events that uncovered vapor intrusion concerns in and around residential areas in Franklin. The U.S. Environmental Protection Agency (USEPA) has identified the former Amphenol Corporation site (Amphenol), located at 980 Hurricane Road, Franklin, as one potentially responsible party. Amphenol was utilized for the manufacture of electrical parts in the 1960s through the 1980s. Wastes generated and stored at the site during this time were reported to include volatile organic compound (VOC) solvents, poor housekeeping and unregulated discharges of which significantly contaminated surrounding soils, groundwater and a sanitary sewer line. Two previous rounds of vapor intrusion testing (June 2018 and October 2018) have been carried out in Franklin by MUNDELL at the request of EWA. This most recent 2019 round of investigative activities follows on from these prior assessments in order to contribute to the available environmental database to support an enhanced understanding of the of potential vapor intrusion hazards that may be present as a result of contamination that is related to the Amphenol site and other possible sites within Franklin.

The currently reported sampling and testing activities were carried out from February 26th to March 4th, 2019. The chemicals of concern tested for during this sampling event are classified as chlorinated volatile organic compounds (cVOCs) and include tetrachloroethylene (PCE), trichloroethylene (TCE), 1,1,1-trichloroethane (1,1,1-TCA), cis 1,2-dichloroethylene (cis 1,2-DCE), trans-1,2-dichloroethylene (trans-1,2-DCE), 1,2-dichloroethane (1,2-DCA) and vinyl chloride (VC). Multiple technologies were used to measure vapors, including traditional Summa-type air canisters, passive samplers in the form of Radiello 130 units, and the VaporSafe™ system developed by Groundswell Technologies. VaporSafe™ is a state-of-the art innovative vapor intrusion monitoring system wherein grab and/or continuous monitoring air samples are collected on-site and injected into a gas chromatograph, analyzed, and the results reported in near real-time. This method provides a quantitative measure of how vapor concentrations may be varying over time as a result of a number of site-specific factors.

Thirty (30) houses had *grab samples* collected using glass syringe samplers, the contents of which were analyzed by the VaporSafe™ system. Grab samples are a “snapshot” in time, but are a useful tool to rapidly screen residences for vapor intrusion concerns and help focus on homes for additional testing. Therefore, it should be noted that the concentrations detected during the grab portion of this sampling event are not necessarily the minimum nor the maximum concentration of vapors in indoor air over a longer period of time, given the inherent variability of vapors in air.



One third of the houses that had grab sampling performed had detectable levels of TCE in indoor air above the reporting limit. Four (4) of these houses had results that suggested the presence of TCE above Indiana Department of Environmental Management's (IDEM's) Residential Indoor Air Screening Levels. Grab samples collected from sewer cleanouts located at four (4) additional residences indicated concentrations of TCE and/or PCE in exceedance of residential indoor air screening levels. **The presence of high concentrations of cVOCs in sewer air could pose a potential threat to indoor air in the event that sewer gases enter a house through faulty plumbing.**

Continuous monitoring was then performed on five (5) residences using a combination of the VaporSafe™ system, Summa-type air canisters and Radiello passive samplers. Comparison of data from the three distinct technologies provided a "check-and-balance" during the investigation and revealed invaluable considerations about the role of variability on short- and long-term human exposures in Franklin. Three (3) of these houses had indoor air IDEM screening level exceedances of TCE recorded by one or more of the monitoring technologies utilized. Vapor mitigation systems where appropriate were recommended to the homeowners in their individual reports.

The exceedances noted in several residences indicate the necessity for further vapor intrusion monitoring for residences near the Amphenol site and impacted sewer line. **Continuous monitoring of select houses conducted with the VaporSafe™ system also demonstrated the variability in concentrations, temperature, and barometric pressure over time in a manner that traditional air canister sampling has not been able to demonstrate.**

Additionally, creek bank soil and surface water samples were collected from four (4) locations along Hurricane Creek - two locations upstream of the Amphenol site and two locations downstream of the Amphenol site. Soil from the sampling location situated at the cross point of Forsythe Street and Hurricane Creek had a detection of TCE just above the IDEM soil migration-to-groundwater screening level. **This suggests that occasional discharges of TCE have occurred to Hurricane Creek, and that TCE groundwater impacts beyond those currently identified may exist in the vicinity of Hurricane Creek and beyond.** This detection in such a limited data set suggests the need for those overseeing the regulatory aspect of the Amphenol investigation/remediation to expand the scope of sampling for surface water and sediments in Hurricane Creek.

According to historic site documents, the sanitary sewer line located along Forsythe Street was a primary preferential pathway for VOCs from the former Amphenol site. Due to the high concentrations of PCE and TCE observed in several residential sanitary sewer cleanouts, robust sampling efforts should be initiated to trace vapors not only through sewer gases but also sewer backfill soils and sewer sludge where VOCs may have remained sequestered for an extended time period. Additional soil and groundwater sampling beyond the area immediately surrounding the sewer line is also recommended to fully delineate the horizontal and vertical soil and groundwater contamination extent so that appropriate remedial decisions may be implemented in an effective and timely manner.

Emerging real-time continuous vapor intrusion monitoring techniques such as the VaporSafe™ system are actively being demonstrated in several U.S. EPA regions. Use of these technologies



can increase the understanding of temporal and spatial variabilities that standard Summa canister 24-hour averages may not see. Since it is well known that vapor levels vary over time and ambient conditions, **dispatching a continuous technology to the most high-risk residences may reveal patterns of intrusion and peak concentrations that may be missed by traditional sampling methods alone.** A sampling strategy as was used as part of this sampling event, which screened 30 homes for vapor intrusion concerns in less than one week, can be a significant tool to rapidly identify additional human health risks that may be outside the current U.S. EPA priority study area. The potential risk from PCE and TCE in sewer gas should also be assessed with sewer gas leak tests performed to ensure houses are not at risk of infiltration of PCE or TCE from faulty plumbing.

The goal of this executive summary was to provide the public and decision-makers with the findings in preparation of the release of the full report. This summary represents a general overview of the data and scientific conclusions that the full report will provide in detail.

The full report will include the following critical information:

- Data tables, graphs, and maps of sampling locations;
- Discussion of factors that influence VOC fluctuations in indoor air, and how current sampling methods may not fully represent risks to human health in Franklin;
- A synthesis of previous investigations to date, including discussion of existing data gaps; and
- Recommendations for new cleanup strategies that have been successfully used to address sites similar to those in Franklin and potential vapor intrusion sources that the current remedial technology (pump and treat) had failed to control.

